

MINUTES
HOUSE STUDY COMMITTEE ON EDUCATION INNOVATION
October 22, 2014

The House Committee on Education Innovation held its sixth meeting on October 22, 2014, at 1:00 p.m. at the Friday Institute for Educational Innovation, 1890 Main Campus Drive, Wachovia Innovation Hall AB, Room 101, Raleigh, North Carolina. Co-Chairman Susan Martin presided, and the other committee members present were: Co-Chairman Craig Horn and Representatives, Edward Hanes, Marvin Lucas, Dennis Riddell, and Phil Shepard along with public members Sue Burgess, Sean Bulson, Karyn Dickerson, and Anna Spangler Nelson. Visitor Registration Sheets are attached as Exhibit 1, and the Agenda is attached as Exhibit 2.

Chairman Martin called the meeting to order and recognized the assistant sergeant-at-arms working the meeting: Bill Morris and Doug Harris.

The Chair said she would skip approval of the April minutes until the end of the meeting to give members an opportunity to look them over. She asked Kara McCraw to come forward to begin the teleconference on Pre-Kindergarten Education: New Initiatives by the State of Utah. Gretchen Anderson, Utah Governor's Office of Management and Budget, began the presentation from Utah.

Ms. Anderson said it was a pleasure to be able to share some of their experiences with the Committee. She said she works with the independent boards that were established as part of "Pay for Success" social impact bond and also another ramp program associated with pre-school education.

Ms. Anderson said her background is in science. She used to work for Goldman Sachs, and she became involved with the initiative in Utah with the social impact bond in 2013. She said she is not an early education expert, but Sheri Ebert was present with her to respond to any questions specific to curriculum models.

Ms. Anderson's first slide was an overview of how a social impact bond works and what the model looks like if there is a credential model transaction that partners private money investment with government and a social program. (See Exhibit 3.) She said in the second part she would talk about what happened in Utah in terms of legislation and becoming only the second social impact bond in the country. She said there was a learning curve there. Ms. Anderson said the third part would be about what is happening in other parts of the country, and what other kinds of applications there are for social impact with the pay for success program.

Ms. Anderson said communities at the state, county, or municipality level identify the need. She said nationally government funding is decreasing and the bulk of the government funding is going towards remediation. In other words, there is already a problem and it is soaking up the funding that is available. In many cases that means preventive programs that will eventually save governments from having a big problem don't get funded. The transaction in Ms. Anderson's example (Exhibit 4) was a model where a community was able to obtain funding

from private investors to invest in preventative programs that ultimately reduced government costs.

Ms. Anderson said one of the drivers is that many of the largest foundations in the country that were annually investing hundreds of millions of dollars in social programs were not seeing any change. The problems were not getting better, and the problems were not going away. So the biggest and most sophisticated foundations became far more rigorous about looking at evidence-based programs that could demonstrate results in addition to output.

Ms. Anderson said the community identifies need whether it is health, education, recidivism, homelessness or something else. She said there are all sorts of applications for this sort of a financial transaction. Once the community identifies the need, the government makes it a priority; and a service provider emerges that has an evidence-based and results-based model that can ideally show some kind of longitudinal data that gives investors confidence that the provider can actually deliver the kind of results that they maintain that they can.

The next piece is obtaining investors. Ms. Anderson said there is a huge amount of funding available across the country for these kinds of investments. A large portion of it would be from banks that need to meet their Community Reinvestment Act (CRA) requirements, which means that they have to invest in low-stability communities. The other type of investor is from very large foundations, and a third type of investor is emerging: individuals and foundations that are interested in impact investing.

Ms. Anderson said a project manager or intermediary is often involved, and there are several of these organizations across the county such as Social Finance, Perspector, and Anthony RC. These are non-profit organizations that act as a project manager who will work with the government entity, identify a need, identify a provider, work out the negotiations of the transaction, and oversee the project once a contract is finalized. The government entity involved agrees to what the payback terms are going to be over a period of time, and one important key component of the transaction is that all of the parties agree that the program is going to get certain results that reduce government cost. If a program does not get those results, then the government does not have to pay the investor back. It is a nice built-in insurance that whatever provider is picked, the investor has to have a level of confidence that they are going to get the results that they say they will or the investor won't get paid back.

Ms. Anderson said another key component of these transactions is that there is always an independent evaluator as part of the transaction who goes out and measures whether those results have really been achieved and quantifies what the results are. She said that drives what the payback is to the investor with the government paying for those results.

She said some private payers are also getting involved, so if there is a health program, for example, that reduces the number of people who go into the emergency room then that hospital corporation might be interested in funding the payback instead of the government entity. Ms. Anderson said this is an area where no two deals are exactly the same, and it is evolving quickly.

There are 17 states that are looking at these transactions in one form or another. There are six in California alone having to do with different counties and locations, and they are finding all sorts of new applications for their transaction model.

Moving to Exhibit 5, Ms. Anderson said Third Sector is one of the primary intermediaries in these transactions, and they have offices in Boston and San Francisco. She said many of the government entities that are looking at these transactions are doing consulting work with Third Sector. She said in Utah, Third Sector is working with Salt Lake County that is going to have anywhere from three to five of these social impact bonds in the next year or so. She said Third Sector's website is a good resource for information, and they are always willing to set up a conference call.

Ms. Anderson furnished a fact sheet handout (Exhibit 6) and also referred the committee to a website: www.payforsuccess.org, as a resource to learn about the way some of these transactions are structured.

In terms of what happened in Utah, Ms. Anderson said they built the statute first. She said Salt Lake City is the second largest Goldman Sachs office in the country and the fifth largest locally, and so they have an interest in the community. They found compelling research about a pre-school model that would be offered in Granite School District, and Granite School District has one school of data to demonstrate the effectiveness of this pre-school model, and that got on someone's radar; and over the course of 2012 and the beginning of 2013, they put together a structure for a deal to fund five cohorts—five years of pre-school classrooms in the Salt Lake area. Putting that transaction together required having the State of Utah enter into a payback agreement; and in order for the State of Utah to be permitted to do that, legislation was required. The bill was introduced in 2013. Ms. Anderson said Utah has a part-time legislature that meets in January and February every year, and in 2013 the legislation did not pass. She said the United Way stepped in because they had been partnering with Goldman on a number of initiatives, and they agreed to back the payback fund for one year because United Way had raised funding for pre-school classes within the Salt Lake area already. The funds were still being used for the same purpose; they were just going through a different channel.

Ms. Anderson said in 2014 the legislation was introduced again (HB 96), and it did pass. She said the Exhibit 3 handout gives a flowchart of how it actually was mandated through the legislation and how it actually worked. She said HB 96 bundled two programs together. It included the Pay for Success social impact bonds, and it also included funding for a grant program that would allow most public providers and private providers of pre-schools to apply for a grant that would allow them to implement a high-quality, pre-school curriculum. It was really for technical support in those pre-schools, not necessarily to fund new seats or new classrooms.

To be clear, Ms. Anderson said in the original transaction there were five cohorts, so the United Way stepped up and assumed the payback fund for the first cohort, and HB 96 addressed cohort two through five. She said there was an annual appropriation of \$3 million for HB 96 to be divided between the grant and the Pay for Success contract.

Chairman Martin said since the committee was learning about education innovation, she would like to hear more about the pre-school program.

Ms. Anderson said the legislation mandated the components of a quality pre-school or outcome. She said it was not mandated that there be a specific model. She said Utah has, as she is sure North Carolina has, all kinds of different curriculums that are being delivered in different pre-schools. Therefore, the legislation was primarily concerned with outcome. She said Sheri Ebert could speak to one model. Granite Pre-school, as mentioned before, attracted the investor because that school had data that showed what kind of outcomes they had been able to achieve.

She said they have contracted with Utah State University to do the independent evaluation on the first cohort by using a Peabody Picture Vocabulary Test (PPVT), and they tested when the kids went into pre-school and when they were ready to go into kindergarten after finishing pre-school. She said those kids are tracked every year through sixth grade. Their test scores indicate that when they enter pre-school they are at-risk for not being grade ready when they go into kindergarten.

Ms. Sheri Ebert said she would jump in briefly. She said prior to her taking her present position with the Utah State Office of Education, she actually worked in Cancun School District in Utah, and they actually applied for this funding created through HB 96. She said there are many models in Utah, however, when they applied for the funding there was a specific grant process in order to get the funding.

Ms. Anderson said if you look down the flow chart you will see in the third box down it says, "Parents voluntarily enroll their child in preschool." And then it cites home-based technology program, private daycare and preschool program, and public and charter school. She said the intent was not to exclude any provider but to be flexible in terms of the actual model.

In the Utah social impact bond, Ms. Anderson, said you can see on the fact sheet provided exactly how it was structured, who the parties were that were involved in the transaction, and how the funding and the payback agreement worked.

Ms. Anderson said there are 17 states currently looking at these kinds of transaction through the non-profit finance fund. She said California is currently looking at six different applications to cover a broad spectrum of social issues.

Ms. Anderson asked if the committee had any questions.

The chair recognized Representative Lucas and asked him to go to the microphone.

Representative Lucas said he was questioning the relative stability of the Salt Lake model. He said in North Carolina, especially in the eastern section of the state, there are relatively unstable populations because of high concentrations of military students. To get a three-year longitudinal of performance in preschool up through grades 1 and 2 and beyond is difficult because of the instability of the population. He said the question was, in their

measurement outcomes, how much importance is put upon the continuous testing of the same students.

Ms. Anderson said the target group for this legislation is at-risk kids from low to middle income areas, and they are transients. She said when they go into preschools, they are given an identifier number, and that identifier number is used throughout the state school system as they progress through the grades. Many are refugees and immigrants, and even though they may be moving from location to location, there is some factor in the contract and in the negotiations to the payback fund that allows for attrition because some will move out of state. She said they don't have the same issue in terms of military where the students would be moving from state to state more frequently, but they have movement throughout the state. The identifier number is the way the students are tracked even when they relocate.

On follow-up, Representative Lucas said he was happy to know that they have a basic cadre of students that would qualify based on the core. He said nobody would have 100%. He asked if there were a qualifying threshold for payback.

Ms. Anderson said from the PPVT testing they identify the percentage of kids in every class that would be predicted not to be grade ready when they go into kindergarten. And, historically, she said that has been about 25% of the class. The way the transaction is structured, the assumption is, again based on historical data, 25% of the class would not be ready for kindergarten if they did not go through preschool. At the end of preschool, 90% of that 25% is grade ready. She said that is how the payback fund is structured, and money is reserved based on that assumption.

Representative Horn asked if we know what the grade ready for kindergarten numbers are in North Carolina.

The chair asked if anyone in the audience knew the answer to what percentage of our students are grade ready for kindergarten.

Mr. John Crow from DPI said that is a number they do not currently have but will have in the future.

Ms. Elizabeth Byrd from Jacksonville, North Carolina, said she has dealt with preschool for a long period of time in early education, and coming into a kindergarten class regardless of whether you can speak English or whether you are backward or whether you are advanced, the teacher will immediately classify you as to what your needs are and then proceed to meet those needs.

The chair recognized Superintendent Sean Bulson to come forward for a question.

Mr. Bulson said understanding that this investment is based upon cost avoidance, and that is how the money flows through this, and looking at the sheet provided, it basically indicates that the cost avoidance occurs in two places: avoidance of special education service expenses and avoidance of remedial services. From the educator perspective, he said avoidance of remedial

services makes lots of sense to him. He said he had huge concerns about how the special education piece is done. He was curious, specifically, as to how that is being measured because this is a tough time to identify students for special education, and disabilities are harder to identify until they are often a little older, depending on the disability. And also, when a student has a disability, if you are creating incentives to keep them out of special education services, he said you are setting up a really dangerous situation that may keep students who really need it from getting those services. But, at the same time, he said over identification for special education can be a problem. So the benefit or danger would just depend on how carefully this is done.

Ms. Anderson said when the initial testing is done, students who have a disability that is identified, whether physical, mental, or a serious learning disability, are not part of the pay for success cohort. The assumption is that they are going to need special attention as they go through the school system. The students who are part of the cohort are those students who test in a way that indicates they have the potential to be helped. And this is all done anonymously; the teachers never know, and the school districts don't know. It is done through an anonymous identifier number that is tracked through Utah State. It is not as if they go into kindergarten and get flagged as already having some issues. They are either in special education or they are not in special education. After they complete each grade, Utah State runs a report on those identifier numbers, and those that stay out of special education then become part of what's paid back to the investor. She said the calculations are based on their WPU, which is about \$2700 per child for a year of special education.

Mr. Bulson said the role of the committee is to make recommendations, and he said he saw a lot of benefit to further exploration of this model, but he said they should tread very carefully if one of the incentives is cost avoidance in special education.

Chairman Martin said the committee would move on to the next section of this presentation and then come back if there are overall questions. She said she and Co-Chair Horn wanted to thank the folks from the Friday Institute for allowing the committee to use the facility without charge and for setting up the video conference.

Co-Chair Horn said this committee meeting was a bit of an experiment integrating teleconferencing, but it was an opportunity to maybe set a new direction for the legislature and other committees to work together with people around the country without the expense and time of travel. If we are truly moving into a digital environment, he said his is an opportunity to set the pace for not only the rest of the North Carolina General Assembly but for legislatures around the country in learning with each other and working with each other by utilizing the digital environment. He said we might be able to parlay this kind of thing to ensure more direct involvement of our citizens and teachers from around the country for conferences and committee meetings so everyone has an opportunity to have direct access to their government.

Chairman Martin introduced Dr. Claudia Miner for Part 2 of the Utah presentation.

Ms. Miner said she is the Executive Director for the UPSTART Program and Vice President of Development for the Waterford Institute. She said her colleague Sheri Ebert was in

Utah and they would be tag teaming on the presentation. She also introduced Michael Melendez, her colleague from Waterford who was with her at the meeting.

Ms. Miner said she was going to concentrate on software, but she would give background on the UPSTART Program so the committee would have a little bit of context. (See Exhibit 7.) Ms. Miner also furnished a Waterford Early Learning handout attached as Exhibit 8. She said UPSTART stands for Utah Preparing Students Today for A Rewarding Tomorrow. She said in Utah there was a great deal of interest in kindergarten preparedness, but there were a number of questions that needed to be answered. One was the cost of preschool and the second was the desire among many parents to keep children in the home as long as they could. The third was the obstacle of transportation in Utah's very rural areas. She said UPSTART was designed to respond to those three concerns and also to support preschoolers to be kindergarten ready.

Ms. Miner said the 5-year pilot was established by the legislature, and when they implemented the pilot it included very strong reporting requirements as well as an external evaluation component. She said the Utah State Office of Education ran an RFP process and the non-profit Waterford Institute was selected.

Ms. Miner said UPSTART today is run in collaboration among Waterford, the Legislature, and the State Office of Education. She said last spring their pilot was extended five years, and they have received increased funding. They moved from 1,300 children in year five to 5,100 children in year six this year.

Ms. Miner said UPSTART is an in-home school readiness program that uses Waterford software. Children receive an individualized reading, math, and science curriculum, but the emphasis is on reading. She said the program is designed to form a partnership with parents to ensure all children are ready to be successful in school. Ms. Miner said computers and Internet are given to the homes and families that do not have them.

Before talking about the software, Ms. Miner said she wanted to tell the committee about their unique user support for the program. First of all, she said everything they do is done in both English and Spanish. Second, they are highly proactive. They do not wait for parents to contact them; they contact the parents. She said Waterford does in-person and on-line training, and every week parents receive an email from them with ideas about off-line activities they can do with their children as well as the usage report arriving about the last week. She said as a part of their requirements, they have regular motivational calls with the parents; and the purpose of those calls is to keep them using the program.

Ms. Miner said there are three software programs in the UPSTART Program. Waterford Assessments of Course Skills™ is an adaptive computer-administered test. *Rusty and Rosy Learn with Me™* is the core curriculum, which is sequenced and adaptive, and it is reading, math, and science with the emphasis on reading. *Camp Consonant™* is a reading intervention program that about ten percent of the children end up using.

Ms. Miner gave some statistics on the core curriculum, *Rusty and Rosy Learn with Me™*. There are more than 2,500 lessons, more than 7,000 activities, 360 digital books, 330 animated

songs, and altogether more than 450 instructional hours. She said there are hundreds of printable resources the parents can use if they want to, and there are also progress reports in the software for the parents.

Ms. Miner said *Rusty and Rosy Learn with Me*TM is 100% correlated to the Head Start Child Outcomes Framework and 100% correlated to NAEYC's Guidelines for Curriculum Content.

Ms. Miner said *Camp Consonant*TM, the intervention program, has over 2,700 individual activities, more than 150 hours of instruction, and books, songs and videos. There is also a built-in system of reinforcement.

She said *Waterford Assessments of Core Skills*TM (WACS) is based on five years of research and aligns both national and state standards. Children are screened twice, once at the beginning and once at the end. She said they are screened in ten key pre-literacy and reading skills, so they go beyond just satisfactory and unsatisfactory. She said they gather a lot of information that is helpful to staff and to parents.

Ms. Miner said there are four ways that they measure results. The first is usage, which is a key indicator of success. But even more than that, Ms. Miner said it tells whether the parents are engaged and motivating their children. So they track usage on a weekly basis for each child and report to parents. *Waterford Assessments of Core Skills*TM, at the beginning and end of the program, gives a pre-program baseline and a post-program evaluation. She said the external evaluator uses a treatment and control model to evaluate the program. She said Sheri Ebert would talk more about that. Finally, Ms. Miner said they use parent feedback about the program and how to make it better because they change it every year based on that feedback.

Ms. Miner said the usage requirement is 15 minutes a day for five days a week: 75 minutes of reading. Once that is done, students can move on to math and science, but they have to get the reading part of the program done. With 75 minutes as the requirement, the average usage for Year 4 was 107 minutes. She showed a Year 4 Usage Chart showing that the only week they fell below 75 minutes was Christmas.

Ms. Miner said Sheri would talk about results, but she wanted to tell the committee about a fifth way to measure the results of UPSTART. She said she calls it "Super Vetting": the UPSTART i3 Grant. She said i3 is Investing in Innovation, a federal grant program that is highly competitive. Last year they funded 25 out of 618 applications. She said they learned late last spring that they actually received a validation grant. The project is to expand the program in Utah's 18 most rural school districts. She said the thing they are proudest about is the fact that validation grants are only given to programs that have strong evidence of results. She introduced Sheri Ebert, in Utah, to talk about some of the results.

Ms. Ebert's presentation begins on page 18 of the handout entitled, "UPSTART," which is Exhibit 7. The audio is not clear enough to transcribe her remarks, but you can see an outline of her presentation on page 18 through page 28. Ms. Ebert also provided Exhibit 9, Upstart Program Report of FY 2014, for the information of the committee.

Ms. Miner said the last slide of Exhibit 7, page 28, shows cost comparisons with some well-known school preparedness programs. She said UPSTART does not do site-based instruction; they are done in the home, so they don't have overhead costs. Head Start, which does many other great things, is \$7,222 a child; and it is estimated that universal Pre-K costs about \$8,700 a child. UPSTART in the first five years when they were serving about 1,300 children a year cost about \$1,300 per child. Ms. Miner said the legislature told her to take the amount of money they were giving her and divide it by the number of children, so that \$1,300 includes the children who needed computers and who needed the Internet. She said this year, because they got an additional appropriation and their programs grew, the amount per child dropped to about \$866 per child.

Ms. Miner said they actually worked with Head Start and asked them if they had a waiting list that they could not serve. Head Start said, "Of course we have a waiting list." So UPSTART was able to pick up their waiting list children at a much lower cost so more children could be served. With migrants' Head Starts in the state, those children go to classroom programs during the day and they recommend to the parents that they participate in UPSTART in the evening. She said sometimes that is the first computer the home has ever had, so that actually takes care of not only the achievement gap but the tech gap that they might be experiencing in that family.

Ms. Miner said she and Sheri were ready to answer questions, and Chairman Martin asked the committee if there were questions.

Co-Chairman Horn said he wanted the committee to know why he took an interest in the program. In speaking to Senator Howard Stevens in Utah, he said that Utah was getting substantially improved results from their Pre-K program for substantially less money per child. Rep. Horn said you can't get anything that rings more clearly to an appropriations guy than better results for less money and getting to more people. He said he took a look at Utah and saw that Utah had some big cities and lots of small ones and lots of rural areas, which is somewhat a description of North Carolina. He asked whether North Carolina could deliver a quality Pre-K program to more people for less money, and that was how he came to asking the Waterford people to come to talk to the committee to say how they are doing it. He said he didn't know whether or not something like that can be done in North Carolina. He asked, "Can we? Should we?" He said we all know the old computer adage: garbage in, garbage out. He said the more well prepared our kids are coming into kindergarten, the better chance they will have of coming out the other end even more well educated. He said he is looking to the committee members as practitioners of the trade, legislators, and staff to help the General Assembly figure out if there is something here for North Carolina that makes practical sense. He said the concept sounds right. He said the Utah folks gave a general idea of the program and how they are paying for it. He said now comes the process of determining whether we can do this in North Carolina, and should we do this in North Carolina?

Chairman Martin said she had a question. She said it seems like if you are doing this with the parents, and it's in low-income areas, and sometimes they have not had a computer, are you measuring in any way benefits to the parents and to literacy in more than just the preschooler?

Ms. Miner said they encourage the family to use the computer for other things besides UPSTART. She said they do put software on the computer called K9 that blocks objectionable sites or they block those sites otherwise, but other than that they think it is great if the rest of the family uses the computer. She said an older child can do research for school, and a parent can search for employment on line; and they encourage that because they believe there is a tech gap as well as an achievement gap, and they want everyone to have a chance to use the computer and the software.

Chairman Martin asked if they find the software is used exclusively in that child's home or do they also find that it is also used in a childcare setting that is perhaps not preschool but some informal childcare setting.

Ms. Miner said there a couple of answers to that question. One, it can be quite complementary. If they are doing another program during the day, it may be two days a week, it may be three days or longer; Waterford believes they can always stand some extra cognitive work. But the other piece, and she said Chairman Martin had given her a great transition back to the HB 96 presentation, they also received an HB 96 grant that was described right before her presentation. She said they are working with the Professional Family and Childcare Association in Utah so some of those women who are actually taking care of children in their home are using the program as their curriculum.

There being no further questions from the committee, Chairman Martin said she believed they had some work to do to process the information they had received and to look at all of their options to see how they can move forward. She thanked the Utah folks for sharing their information by teleconference, and she thanked the Waterford people for making the trip to North Carolina.

Chairman Martin said they would move on to the next item on the agenda, apprenticeship programs for high school students—another opportunity of best practices and what they might be able to share across the state. She asked the first speaker, Mr. Walter Siegenthaler, to come forward for his presentation.

Mr. Siegenthaler said he is the Executive Vice President of Max Daetwyler Corporation in Huntersville, North Carolina. (See his PowerPoint Program attached as Exhibit 10.) He said he would show the committee a successful apprenticeship program that is called Apprenticeship 2000, which started almost 20 years ago and, therefore, has a track record. He said from Apprenticeship 2000 they helped another group get started, NC Triangle Apprenticeship Program (NCTAP). He said Mr. Lukas Schoenwetter would follow up after his presentation to talk about the stumbling blocks in getting the NCTAP started.

Mr. Siegenthaler said they began working on Apprenticeship 2000 in 1995, and it was clearly driven because they could not get the skilled labor they were looking for. He said they are a Swiss-based company, and they had to get people in from Switzerland to keep things running, so they said they had to do something. Luckily, they found some other companies who had the

same problems and the same vision; so they started Apprenticeship 2000, so named because the first apprentices graduated in 2000.

Mr. Siegenthaler said they are a group of partner companies around the Charlotte-Lake Norman area who work together. He said he would explain why the partnership is so important. He said you can see on the map slide (page 3 of Exhibit 10) that they are spread around. They have companies in Charlotte, the Blum Company is in Lincolnton, Ameritech is in Iredell, and Daetwyler is in the northern part of Mecklenburg making it a regional apprenticeship program.

What is Apprenticeship 2000? Mr. Siegenthaler said it is a dual training program that combines academics in college and hands-on training in companies. He said it is a total of 8,000 hours, which means it is a four-year program. At the end, he said their apprentices graduate and get a Journeyman Certificate from the North Carolina Department of Commerce (used to be Department of Labor). And, they get an associate's degree in Mechatronics from Central Piedmont Community College. He said he feels very strongly that it is very important to have those credentials. He said having an AAS Degree in conjunction with the hands-on training is very important because it helps to counter the hesitation of parents or society in general to not send young kids to college. Mr. Siegenthaler said they are actually going to college, and they are earning while they are learning. And, at the end, they are guaranteed a job. He said nobody else does that as far as he knows.

Mr. Siegenthaler said they go through a very extensive selection process to select the young children to start an apprenticeship program. It is based around a year-long selection process, which starts out in October through December. First they invite career counselors to the company, or they recruit in Apprenticeship 2000 through two groups: the southern group and the northern group. First they introduce the students to the program and show them what modern manufacturing of today is. He said today's manufacturing is not what textile used to be. He said it is very important that they understand that. And then they go to the high schools and talk to the junior classes. He said the career counselors and teachers help them to get the right kids together when they do the presentation, so they understand what the program is. If they are interested, then they can attend an open house. Mr. Siegenthaler said they make one condition there: anyone who comes to an open house has to bring at least one parent or legal guardian. They feel it is very important to get the parents or guardians involved right up front so they understand what it is because a four-year program is a big commitment.

During February and March, Mr. Siegenthaler said they have an orientation, which is four evenings during the week when they come to the company after school. He said they work again together as a partnership, and his company Daetwyler usually works together with Ameritech. He said they spend two days at Daetwyler and two days at Ameritech; but the trainers from each company attend all four sessions. He said the students work on a project that they can take home, and those sessions are to show the students whether that is something that they really want to do. They work in the environment, and they have to do some filing, some sewing, and some machining. Also, the company evaluates the students by seeing how well they work. If they are still interested after orientation, the company offers them an internship or pre-apprenticeship during the summer. He said it is a six-week program, and they are paid while they are doing that. They are actually going to school and being paid, during the summer as well. They go three days

at the shop and go two days to CPCC, which is to see if that is really what they want and whether the company has the right students. Only after that six weeks do they offer apprenticeships to the selected students. Mr. Siegenthaler said it is a very selective process they go through, and then in August the selected students begin their apprenticeship while they are seniors in high school.

As far as the selection requirements, Mr. Siegenthaler said they are looking for a minimum GPA of 2.8. For home schoolers, there is a CPCC placement test. He said Algebra 1 and 2 are important, as well as Geometry. He said attendance is very important because out in the industry you cannot stay at home every second day. If anyone has more than five absences a year, they are basically out unless they have a good explanation. He said recommended courses are physics, drafting, computer application, and any related hands-on courses such as automotive, electronics, HVAC. He said they also talk to the students during the selection process and ask them what they are doing at home. If they fix their own car, they have an inclination to work with their hands.

Mr. Siegenthaler said the first year of the apprenticeship program they are seniors in high school so they spend half a day at high school and the other half day they spend at hands-on training at the company. The second through the fourth year they spend one day a week at the community college, in their case CPCC, and four days a week at the company. That schedule is for all year long including the summers. He said there are shorts breaks in between where they are not going to school, so if they don't take their vacation, which they earn just like other employees, then they have to work even if there is no school. He said the apprentices are paid by their work, but they are also paid while they are sitting at school. Companies pay the tuition and even the books in most cases, and at the end the apprentices have a guaranteed job. Plus, there is no student debt when they finish up.

Mr. Siegenthaler said not every company offers all the trades, but as a whole group they offer the trades shown on the handout (Exhibit10). At Daetwyler Corporation they offer CNC Machinist, Welding Fabricator, Mechatronics Electrician, and Mechatronics Technician. However, all of the students basically get the AS Degree from the community college in Mechatronics—even a welding fabricator. Likewise, a mechatronics technician learns to weld. The company feels that they need to educate broadly rather than just specialists in order to give the employer flexibility to move employees around.

Mr. Siegenthaler explained why they formed a partnership of companies. He said at Daetwyler, they take one or two apprentices a year. If he were to go to CPCC and ask them for something special for two students, they would laugh at him. As a group, they get together at least ten students, and then the school is able to do something for them. A very important thing the school does is the scheduling. Another advantage is as a group they can offer more opportunities. Another help is spreading out the administration of the whole program. And, they can share resources among the different companies. Mr. Siegenthaler said they have had apprentices from other companies come to Daetwyler Corporation to take welding classes in their shop and Daetwyler apprentices go to other companies for classes.

Mr. Siegenthaler said Apprenticeship 2000 makes a point to make a really nice graduation because they feel the education the apprentices get is worth as much as a four-year

degree. Again, if they had only one or two apprentices, the graduation would not amount to as much as it does with the entire group participating.

Central Piedmont Community College is a sponsoring organization for Apprenticeship 2000. They do not offer financial resources, but they work with them to adapt their needs. Another sponsor is the NC Department of Commerce because the apprenticeship program goes through that department.

Mr. Siegenthaler said he would like to see programs like Apprenticeship 2000 duplicated throughout the state. He said they are doing quite well now because they are supporting the NC Triangle Apprenticeship Program, which is modeled after Apprenticeship 2000. He said in addition, Apprenticeship Catawba started out with a partner company of Apprenticeship 2000 and is up and going. He said he is going to have an initial meeting in the Triad area with about 27 companies to discuss starting a program there, and he is also planning a meeting in the Asheville area. He said the effort has to be industry driven, and they have to find companies interested in doing it. He said it takes a lot of effort, but there are also a lot of benefits.

In Mr. Siegenthaler's opinion, apprenticeship programs could be set up in other trades such as health care, construction, automotive and information technology. He said there are a lot of opportunities, but the question is who is going to do it?

Another handout concerning Apprenticeship 2000, which is entitled *The Apprenticeship Program*, is attached as Exhibit 11.

Mr. Siegenthaler introduced Mr. Lukas Schoenwetter to speak on NCTAP and what it took to get it started.

Mr. Schoenwetter said he relocated from Switzerland more than two years ago. He said he did an apprenticeship program at Credit Swiss, the famous bank in Switzerland, so he is a child of this program; but he went back to the university. He said this is really a nice program, and it is his wish while in the United States to duplicate it. He said he would talk about how NCTAP got started.

As Mr. Siegenthaler mentioned, Mr. Schoenwetter said they, as employers, have to go into the driver's seat because they know what they need and they know the requirements. But they need partners: other companies who support them, the government, and an educational organization who can help them. He said they would like to beat the skills gap in this state and in the United States by growing their own talents.

Mr. Schoenwetter said NCTAP started 18 months ago in June 2013, and they have these partner companies: Allied Automation, Apex; Bühler Aeroglide, Cary; CaptiveAire, Youngsville; GlaxoSmithKline, Zebulon; Madern USA, Apex; Schunk, Morrisville; and Superior Tooling, Wake Forest. He said the last company to join them was GlaxoSmithKline, which gives them a little more attention because of their big name. He said it is important to have a mix of smaller and bigger companies. He said some of the companies are American and some are foreign like his company Bühler, which is a Swiss-based company that has been into

education and apprenticeship programs for more than 100 years. He you do not have to persuade companies like Bühler to join an apprenticeship program.

Mr. Schoenwetter said about 20 companies came together to hear a speech. He said out of that 20 companies, they were able to form their core; and in May of 2013 the Lt. Governor joined them and was very supportive. NCTAP was founded in June, and they began their recruiting process. He said it was quite difficult to go out to the schools and present something which was not there. But at the end, he said they were successful and they were able to find seven really great young kids who started their apprenticeship programs in September.

Mr. Schoenwetter said they held a signing ceremony at the Capital City Club in downtown Raleigh, and the kids were so proud. He said those kids are all smart enough to go to college, but somehow they found their opportunity. Mr. Schoenwetter said it is a different way; it is not better, and it is not worse, it is just different.

As far as roadblocks for apprenticeship programs, Mr. Schoenwetter said the committee could help them. He said there are still some who think apprenticeships are unionized, especially people from the North. Mr. Schoenwetter said they are not at all. Another misconception is that apprenticeships are only for students who cannot make it to college. Another common mindset is that it is not a four-year degree. He said no, it is not a four-year degree, but it is a four-year program with a two-year degree and the opportunity to go to work. Another misconception is that it is a dirty environment, and Mr. Schoenwetter said manufacturing today must be very, very clean. He said you can eat from the floor.

The biggest problem Mr. Schoenwetter sees in getting started is that employers are quite hesitant to invest in a long-term training program. He said they are investing a lot of money into a product to come out in four years, and they do not know what to expect. He said they have to invest and start thinking long term, and it is a plus to have skilled employees at the end who know their company's culture and have built up a huge loyalty. He said he is still a big fan of his first bank where he was an apprentice. After 25 years, it is still his bank; he grew up there. He said there is an impression that companies, especially merit companies, are really not very willing to invest in long-term training. The impression is that they are more willing to invest in short-term training because there is a current need, and they can fulfill it. He said the companies really would like to build up long-term programs and skills because their mission is to fix their requirements in the future and also to provide their youth an opportunity where they can really make a very good life at the end.

Mr. Schoenwetter said possible actions that he and Mr. Siegenthaler have considered include spreading the message to the community that college is not the only way for every high school student to start a successful career. He said they have to get out that message because they have to find these young adults somewhere. He said they do not come to them on their own like in Switzerland where they get a huge number of applications. He said a lot of CEOs have started their career with an apprenticeship program.

Mr. Schoenwetter said another action would be helping to bring potential employers together who want to start a real apprenticeship program. He said he and Mr. Siegenthaler would

like to educate, teach, and coach them to build up such a program. And, for employers who are investing a lot of money into an apprenticeship program, it would be helpful if somehow they could have a little reward, just a little bait, like for example in South Carolina. At the end of a three- or four-year program in that state, if someone successfully graduates, the company gets for each apprentice for each year a \$1,000 tax reduction. He said just something like that would be great—a little bit of reward for employers who are investing into a long-term program for young people in this state.

In closing, Mr. Schoenwetter said they would like to build their program up a little more in North Carolina, and he thanked the members of the committee for their attention.

Chairman Martin asked the committee if they had questions or comments, and she recognized Ms. Karyn Dickerson.

Ms. Dickerson said during the summer she had an opportunity to go to Germany with 32 other teachers in North Carolina to observe their education system. While they were there she said they went to Siemens and BMW to look at their apprenticeship programs. She said the one thing that all 32 teachers agreed on was how it would be beneficial to have a rigorous, paid apprenticeship program for our students in North Carolina.

Chairman Martin recognized Co-Chair Horn, who had a few questions. He asked whether the companies that grouped together in the Mecklenburg area actually shared apprentices across their companies or did an apprentice only work at the particular company for which he was recruited. Mr. Siegenthaler said they basically work only for the recruitment company because the hands-on training is different from company to company. They do, however, share some resources in training courses that they cannot offer at their own plant. He said the apprentices choose what company they go to, just about like a draft choice. The students put down their choices, and the company picks their choices from those they think are qualified. If they have five who are qualified, and they only pick two, Mr. Siegenthaler said then they talk to the other companies with the agreement of the student, and they might exchange them with another company.

On follow-up, Co-Chair Horn asked if they are working only with community colleges or in some areas do they work in conjunction with a university or college. Mr. Siegenthaler said it doesn't matter so long as the school provides what they need, but they have found that the program works very well with the community colleges. In the Mecklenburg area they work with Central Piedmont Community College, Catawba Valley works with Catawba Valley Community College, and NCTAP works with Wake Tech. He said CPCC is also very willing to share experience and to help other community colleges to get where they need to be.

Co-Chair Horn asked Mr. Siegenthaler whether there were legislative obstacles to pushing the program out across the state. Mr. Siegenthaler said he would not say there is a legislative obstacle, but what they need is companies to see that they need to join the apprenticeship program. He said a lot of companies are talking about the skills gap, but what are they doing about it? He said just talking is not going to solve the problem, nor can government. He said government can support it. Mr. Siegenthaler said North Carolina requires companies to

pay \$50 per apprentice a year, which is an insult. He said if his company were thirty miles farther south in South Carolina, they would actually get \$1000. He said he had a simple proposition. Don't pay a company the first, second, or third year; but pay the company at the end of four years at the rate of \$1000 per year for everyone who graduated. He said there was tax bill out there, but that was based on a calendar year; he said they are running on a school year. He said his program would only have qualified for two out of the four years. He said they needed to look at that legislation and make it as simple as possible.

Co-Chair Martin asked whether the apprentices are paying tuition for the community college portion of their training or whether the company is paying the tuition. Mr. Siegenthaler said the company pays the tuition. He said his company figures it costs them about \$150,000 per apprentice over the four years; however, there is a return. He said he just got figures from a study done in Switzerland in 2009, and the cost over there for a four-year program is about 90,000 euros over four years, and the benefit is about 600 euros more. He said to keep in mind that in Switzerland the government pays for school already so the companies do not pay. And, that benefit is only during the apprenticeship program. If those apprentices stay, he said there is a huge benefit afterwards.

Co-Chair Martin asked if there is any type of payback provision if the apprentice does not stay. Mr. Siegenthaler said they are very clear that they do not have any contract like that. They believe that when they are investing in someone like that it creates such loyalty that they want to stay. He said that has been their experience. Apprentices want to contribute to the success of the company.

Co-Chair Martin asked if they have seen any of their apprentices move up in the company or maybe go back and get a more traditional four-year degree. He said yes, and he was an example because he started as an apprentice in Switzerland. He said many apprentices have moved up in the company. Out of the Apprenticeship 2000 Program, he named several who hold leadership positions in the company. He mentioned a graduate who moved into service from welding and fabricating, and he is installing and serving equipment all over the states. He said they had a female who after graduating in electronics asked if she could go to Switzerland for a year. He said that was seven or eight years ago, and she is still over there. In conclusion, he said the internship program builds a lot of loyalty.

There being no further questions, the chair introduced Kory Coon from Caterpillar, Inc. for his presentation on Caterpillar Apprenticeship Programs. A copy of his handout, "Caterpillar Assembly Pre-Apprenticeship Program (Clayton, NC) Welding Apprenticeship Program (Sanford, NC)" is attached as Exhibit 12.

Mr. Coon said they had a similar story with a little different twist about how they implemented a program that is specifically designed for Caterpillar and their future employees. To hit on a point that manufacturing is not what it used to be, he said at Caterpillar their number one priority is their employees' safety in the shop and in the office. He said he would give a quick overview of what they have done in Sanford in Lee County and Clayton in Johnston County.

Mr. Coon said Caterpillar has been around for about 90 years with their predecessor company started in the late 1800s. He said they were the first company to make the track-type tractor or the bulldozer, which was on tracks versus wheels. He said they have a long legacy of innovation and success in the manufacturing environment, in particular with construction equipment, but with many other businesses over the years.

In North Carolina, specifically, Mr. Coon said they have over 2,000 employees and multiple manufacturing facilities. He said their people have retired here, and Caterpillar has contributed financially to the community in a wide spectrum of activities. He said they sell most of their products through dealers and distributors, and they are great people to talk to regarding how Caterpillar invests in their pipeline of talent because their dealerships need talented mechanics all the time. He said they have two dealers in North Carolina—Carolina Tractor, which is in the western half of the state, and Gregory Poole, which is in the eastern half of North Carolina.

Mr. Coon said he represents the Building Construction Products Division of Caterpillar, which is their smaller machine line. He said they make machines that are about as big as a building, and they also make machines that are the size of a table. The division that he is responsible for, for human resources, is the smaller. The handout shows what those products include and where they are built all over the world.

He said there is an assembly plant in Clayton, NC, where they build small wheel loaders, which are sent all over the world. He said they also have a unique machine design center, which is an absolute paradise for engineers. He said it covers a couple of hundred acres where their engineers are in the building designing the products before they go out and build the products and then test them at their test tracks where they actually get in the dirt. Mr. Coon said that is a great example of where innovation actually happens right there in Clayton.

Mr. Coon said Sanford is Caterpillar's largest facility in North Carolina in terms of employment, and they recently expanded bringing fabrications from Mexico. He said they make skid steer loaders, multi terrain loaders and compact track loaders.

Mr. Coon said safety is their number one priority in their work environment. He said Caterpillar values their employees and is a great place to work.

Mr. Coon said Caterpillar has two apprentice programs, and they are separated out because the Clayton program is different from the Sanford program. The Clayton program is newer, being in its second year. It is a pre-apprenticeship program for assembly technicians. He said they need more assembly technicians than any other positions at their Clayton facility.. He said assembling is not an easy job, but it does not necessarily require the four-year type of training that some of the other high-tech apprenticeship programs require.

Mr. Coon said there are benefits to the students making it a win, win, win situation for everybody. The students are getting a great resume builder with real world experience. He said they receive an apprenticeship certificate after five classes amounting to 15 hours of free college credit before they graduate high school. He said they get paid, and for some of them, another

benefit is they get out of school for half a day to go to work at Caterpillar. He said kids are actually learning job skills that they can earn a living off of. He said Caterpillar is doing the program for two reasons: 1) to build a pipeline of future talent and 2) to build relationships in the community with high schools, school districts, and community colleges. He said Caterpillar wants to give back to the communities that they live and work in.

Mr. Coon said in Sanford they have the welding apprenticeship program. He said they have brought several hundred jobs to Sanford over the course of the last five years, and they didn't think there were enough welders in Lee County and the surrounding areas to meet all of their future employment needs. Therefore, Mr. Coon said the company saw the need to do something different. He said the Sanford welding apprenticeship program launched about three and a half years ago, and the third class of cohorts just started this fall. He said Governor McCrory attended the graduation of the first class last spring. The program gets kids started in their junior year, and during their junior and senior years they receive some training and course work and lots of hands-on, on-the-job training at Caterpillar. He the program has really built up Caterpillar's pipeline for welders in Lee County.

Mr. Coon said the handout shows how the program is structured between high school, community college, and work. He said JCC and CCCC are great partners, and they are just as excited about the apprenticeship program as Caterpillar is.

As to standards, Mr. Coon said their process is similar to what was discussed earlier. They have informational sessions at the school where they also require a parent or guardian to be present with the student. After the student applies, there are interviews very similar to the process they would go through in hiring a full-time employee because the apprenticeship program is a long-term investment. He said to be clear, the pre-apprenticeship assembly program in Clayton actually starts the second semester of the student's junior year; the welding apprenticeship program in Sanford is the entire junior and senior year. Therefore, they are recruiting for the welding apprenticeship program during the sophomore year. Recruitment for the Clayton apprenticeship program is during the fall semester of the junior year.

Mr. Coon said he would entertain the committee's questions.

As an FYI to the committee members, Chairman Martin said there were representatives present from the Community College System to answer questions about how they engage. She recognized Dr. Lisa Chapman, Senior VP and Chief Academic Officer and Maureen Little, Associate Vice President, Customized Training Program, from the NC Community College System.

Chairman Martin recognized Representative Hanes for a question. He asked what the acceptance rate was for entering the programs. Mr. Coon said it was difficult to say because the filtering process washes some out. For example, if the parents don't like the program, some of the kids who might have applied won't after the parents' open house. He said Sanford is the longest running program, and in the first year it was a struggle to get 14 students together across a couple of different high schools. This past year, however, all the way through the process and application, they were getting 75 to 80 kids applying. Mr. Coon said, in his opinion, as the

programs mature and get more popular, they will have to say no to a lot more students than they initially did. He added, as a difference in the Caterpillar programs over the apprenticeship programs mentioned earlier, they actually leverage the Career and College Promise Program for the community college courses that the students are taking, so Caterpillar is not paying their tuition for them; that is part of the Career and College Promise. But, he said they do get paid any time they are doing Caterpillar specific training or work.

There being no further questions for Mr. Coon, Chairman Martin directed the committee's attention to the earlier part of the agenda concerning the approval of minutes from the April meeting. Upon a motion by Representative Lucas, seconded by Representative Hanes, the minutes from the meeting on April 23, 2014, were unanimously approved.

The chair recognized Dr. Glenn Kleiman, Executive Director, The Friday Institute for Educational Innovation, and also Dr. Jeni Corn, Director of the Evaluation Program, The Friday Institute for Educational Innovation. Chairman Martin said they would give the committee an update on the North Carolina Digital Learning Plan, which by legislation they were directed to develop to help the State of North Carolina make the transition to digital learning.

Dr. Kleiman thanked the co-chairs and members of the committee and as the executive director, welcomed everyone to The Friday Institute. (A copy of Dr. Kleiman's PowerPoint Presentation is attached as Exhibit 13. Also furnished for the information of the committee was a *Policy Brief, June 2014*, which is attached as Exhibit 14.

Dr. Kleiman said he would quickly give the committee an overview of their work on the North Carolina Digital Learning Plan, which contracted from the State Board at DPI. He said they are in the early stages of the process. In some places he said he could give the framework they are working from, and in a few places they have some early recommendations.

As a reminder, he said several bills have already been passed saying that North Carolina will move to primarily the use of digital resources in k-12 education by 2017, and teachers and school leaders will meet a set of digital learning standards. So, he said, they are building a plan to help implement things that have already been passed.

In this work, Dr. Kleiman said they are very much building on lots of existing statewide innovations. He said North Carolina has been forward looking in creating things like the North Carolina Virtual Public School, the Home Base System, the School Connectivity Initiative, the work of the School of Science and Math, etc. The list goes on and on, and Dr. Kleiman said these are just a few samples. He said it is also very important that they are building on lots and lots of local initiatives. He said there has been wonderful work locally that needs to be sustained, strengthened, and supported through a statewide plan. It is not at all about the state having "a" model that gets rolled out to 115 LEAs and 150+ charter schools.

Dr. Kleiman said the first point in talking about digital learning, is that some people think it is about the digital part and handing out devices and creating infrastructure to connect those devices. He said that is certainly part of it, but they want to emphasis the learning part of the digital learning plan—learning that is enhanced and enabled by technologies. And to do that

seriously, he said they are talking about digital learning involving changes in where, when, and how learning occurs. So, he said, this is a “learning plan enhanced by technology,” not a “how do we get a bunch of devices into peoples’ hands?” plan.

Dr. Kleiman said these plans require modern technology infrastructure as well as updating the education workforce. He said they are talking about significant changes in how the work is being done, what is expected, and the context in which it is done; and that requires a significant effort to get the teachers and administrators ready for these changes.

Dr. Kleiman said he already talked about the importance of supporting local innovations and said it was also important to engage all stakeholders. He said they know from lots of history of attempted innovations in education that schools were made to carry traditions across generations; they were not designed as organizations for rapid change. Therefore, preparing all stakeholders and getting them to understand why and how things are changing is very critical.

Dr. Kleiman said in their work, they will provide recommendations about policy, funding, and implementation. He said they believe North Carolina is very well positioned to be a national leader in this field.

Moving to the slide showing the elements of the digital-age learning model, Dr. Kleiman said different folks may have different views of some pieces of this, but he said it means they are trying to build the technology base and the expertise to help to move our k-12 system towards things like competency-based learning where they measure mastery rather than just seat time.

Dr. Kleiman said they would move to places where there are opportunities for all students and all educators to engage in anytime and anywhere learning. He said learning doesn’t just take place within the four walls of the classroom. Learning is more personalized or customized to meet the individual needs, learning strengths, and interests of the students. He said we are still working from what was established more than 100 years ago, based on the assembly line of a mass production model of education, and technology enables us to move a much more customized, personalized view of education. He said that includes things like student-centered instruction, project-based learning, and the use of digital content.

Dr. Kleiman said assessments are important, and we all talk about both the need for and the problems with having end-of-course and end-of-grade assessments. The technology with digital resources enables us to have better and better assessment in an on-going way within learning activities and to have real-time data to inform instruction and to provide more information to parents, communities, and students themselves.

Dr. Kleiman said they did a survey, mostly completed by district tech directors, of the eight elements of the digital learning model, and they asked folks which items they considered very important and which items were already in place in schools within their districts. The results are shown on a bar graph in his presentation, with student-centered instruction and personalized learning scoring the highest percentages.

Dr. Kleiman said they have divided the work up, as shown on the next slide, into four major categories: Human Capacity, including professional learning; Content & Instruction; Funding & Policy; and Technology Infrastructure & Devices. He said some additional members of their leadership team in addition to Dr. Corn were present at the committee meeting in case the committee has questions for them. He said they have a very strong team and leadership for this project, and they are moving it forward quickly.

Moving to the next side, on Content & Instruction, Dr. Kleiman said the first message is that digital resources should provide opportunities for personalized, differentiated learning, collaboration, communication, interactive, multimedia experiences with assessments embedded in learning activities. He said they are not talking about taking textbooks and turning them into PDF files and putting them on line. That would serve the purpose of reducing the weight of the backpacks kids carry to schools, but that is not really what they are talking about. They are talking about a very different type of materials that foster a different approach to teaching.

Dr. Kleiman said there are many kinds of digital education resources being developed. He said the commercial publishers are developing big packages. He said there are open education resources being developed at schools, at universities, and at non-profits; some are being developed with foundation funding. And, he said, there are lots of locally-developed curriculum. Dr. Kleiman said there are all kinds of things out there, and in the digital world things change. He said when a textbook goes through the State textbook adoption process and is then adopted, the publisher cannot then legally make any changes to it until the next adoption process. In the digital world, the process of vetting materials is much more complex than vetting a hard copy book. He asked, how do we assure quality control? How do we assure consistency and alignment with curriculum? He said these are much more complex issues that we need to take on. He said there are also different purchasing models. We know how to buy textbooks, but with digital resources there are often licenses that are annual and by student. And things could change. It could be open education resources that are free but need certain kinds of support, etc. So, he said, it is a very different world.

Dr. Kleiman said many of our districts are having teacher teams put together curriculum resources mapped to the State's standards and based on existing materials, some that are licensed and some that are free. And some of the technology tools are designed to facilitate that process to help educators develop, use, and share resources. He said they do not yet have very specific recommendations in this area; but as they work on this in the coming months, they are developing recommendations for the criteria and processes for reviewing, evaluating and procuring digital education resources. Also, they are developing the processes and incentives to encourage the development and sharing of locally-created digital resources across the State. He said they have tremendous capability there. For example, the School for Science and Math has developed a set of STEM curriculum resources that are available to all students throughout the State, but we don't yet have the means to distribute them well or to support the professional development to use them well. Dr. Kleiman said they would be visiting the Research Triangle Charter School, which has also done a lot of development that is available to everyone. Although there is a very large set of good resources, he said there needs be a coordination process to support using and sharing.

Dr. Kleiman said they will be looking at recommendations for the next generation tools to support the creation, reviewing, indexing, and sharing of digital resources. He said they have some tools in place, and they are first-generation tools. He said they are heading in the right direction, but that is still a work in progress.

Dr. Kleiman said they have some very specific and immediate recommendations around infrastructure and devices. He said the committee might know about the School of Connectivity Initiative, which connected all public school and charter school buildings in the State to the North Carolina Research and Education Network, which is a broadband network. He said, all schools do have high broadband access to the school wall, not necessarily to every classroom, and the federal E-Rate Program helped to fund that significantly. He said they are now calling the School Connectivity Initiative 1.0 (SCI 1.0) because they are proposing 2.0. He said SCI 1.0 was very successful in meeting its goals of providing this access and setting it up so that as a school's demands for access increase, the increase for demand can be met. Dr. Kleiman said many schools, however, do not have internal wireless infrastructure needed to bring that bandwidth to each individual classroom in the school. He said we are fortunate that the modernized E-Rate Program will now support bringing that internal Wi-Fi infrastructure for every school in the State. It used to be available only to a very small number of high-need schools.

Dr. Kleiman moved to a slide showing the current status of wireless infrastructure in North Carolina schools. He said only 3% of schools have virtually none. About one-third are beginning to have some, but the service is not necessarily good enough to support all students in each part of the classroom. He said 40% of schools have a bit more than that, and only about 22% are at high density, which means they are really ready to support full digital learning throughout the school. He said the goal is to get all the schools in the State to that high density status.

Dr. Kleiman said the School Connectivity Initiative 1.0 that brought the external connectivity that is already in place is already in the budget for \$20 million of support from the State, and that is matched by \$30 million from the E-Rate Program. He said they certainly recommend that funding continue. For the internal Wi-Fi infrastructure, Dr. Kleiman said a very detailed analysis shows that about a \$12 million contribution from North Carolina would bring a \$32 million return from the federal E-Rate Program. Therefore, a total of \$32 million annually from North Carolina would bring an additional \$62 million of federal E-Rate Program support to provide the robust, reliable access to digital learning for more than 1.4 million students, 180,000 teachers, administrative, and other personnel housed in over 2500 schools. Therefore, the annual cost of the infrastructure would be about \$20 per student/teacher/administrator. Dr. Kleiman said that figure is for internal infrastructure alone; it does not include devices.

Dr. Kleiman said of a \$44 million a year total for North Carolina internal networking, only \$12 million would need to come from North Carolina. He said that includes certain supports for engineering and other things. He said they are recommending that North Carolina consider moving ahead with those costs. And, they have a very specific immediate recommendation, which has to do with the funding within the Race to the Top computing budget. He said about \$4.6 million could be allocated for internal Wi-Fi infrastructure. Working with DPI, he said they

already have approval from the U. S. Department of Education to use that money for this purpose, and that would return about \$16 million from the E-Rate Program, so they could immediately have about \$20 million for internal Wi-Fi infrastructure to get the process started. He said that proposal can be submitted as soon as December and needs to be submitted by January.

Dr. Kleiman turned the podium over to Dr. Corn, and Dr. Corn said she would talk about the Human Capacity work teams and the Funding & Policy work teams. She said she could give the committee some general ideas about the directions they are heading in and the types of questions they will be asking on the ground. She said she would also talk about where they think some of the recommendations are going based on what they have seen so far.

Dr. Corn said a teacher working conditions survey is given out every other year, and they have spent some time going back through and thinking about what data they already have access to at the Friday Institute through their partnerships with the Department of Public Instruction and the State Board. She said rather than burdening the districts once again with surveys about technology and how teachers are changing instructions, this summer they went back through about 1,600 individual items that were given out in schools around North Carolina just in the past academic year. As an example, they took two items from the teacher working conditions survey, and put that up on a map of North Carolina so they could see some general trends. One of the first items they looked at was the proportion of teachers agreeing or strongly agreeing that they have sufficient access to instructional technology, devices, and infrastructure—printers, computers, and software. Dr. Corn pointed out the results on a map in her slide presentation, which depicted the majority of teachers saying they had access. In the map pictured below, the lighter areas showed that teachers do not feel they have sufficient training to fully utilize instructional technology. She said this shows why human capacity is such an important part of the digital learning plan. She said one part is getting the teachers and the students access to the devices and the infrastructure, but then they also have to be provided the right support so that all of the teachers and principals and district staff know how to use those digital tools and resources to support student learning.

Dr. Corn said they think in all likelihood that a lot of their initial recommendations are going to be about supporting the whole pipeline, thinking about what training and supports need to be in place for teachers and principals. She said they are also thinking about new and innovative ways to support leadership for technology and learning in the schools and districts. They are thinking about how to better utilize instructional technology facilitators and media coordinators, both within a school and district, maybe even sharing some regional support. She said they are also thinking about policies that have been in place for a long, long time around CEUs—the continuing education credit or units that teachers use to get their certification over time. If they are talking about mastery and competency-based learning for their students, she said they should really think about that for teachers also. She said they are considering whether there are policies they can make recommendations on that would shift and change the way teachers get certified and keep up their certifications from a mastery-based model.

She said they are hearing a lot from others like Representative Horn that they should be thinking about their teacher preparation programs and what the expectations should be. She said

superintendents tell her the teacher prep programs are important in getting teachers and principals prepared to lead in a digital learning environment, and they should be focusing on change and innovative approaches both in our highest-need schools and in our high-functioning schools.

Dr. Corn said those are some initial ideas that they are considering, and they will be asking some pretty specific questions when they go out in the field over the next couple of months.

The other piece of this is the Policy and Funding recommendations. Dr. Corn said at the core of this plan, it is really about making recommendations to the General Assembly and the State Board of Education, and the Department of Public Instruction about how this should be funded. What are the major policy implications of making the shift to digital learning? She said it is not a one size fits all proposition. She said some of the districts have made great strides in supporting the digital learning transition locally, and others have not had the opportunity to do so. So, Dr. Corn said, how can they make sure that the State is providing the support that meets the districts where they are? How can we get certain funding and policy recommendations in place that are flexible and meet the needs of different superintendents with different budgets? She said they are also thinking about some licensure requirements for staff, kind of in parallel with what she just talked about with the human capacity. She said they are going to be looking at the virtual learning requirements, funding, quality assurance for students, and taking a look at some of the funding and budgetary implications of moving to something more flexible that actually can inform and improve instructions that help teachers make decisions on a much more regular basis.

Dr. Corn said they are also thinking about some of the things they have learned, especially from Race to the Top, like the importance of regional models. She said a lot of districts that are alike want to work together, so the question is how they can put in place funding and policy recommendations that facilitate that. She said there are going to be some questions, and they need to explore the data security, privacy and access as they transition to digital learning, making sure they are able to share across county lines.

Dr. Corn said they are looking at the policy and funding implications of selecting and procuring licensing for all the digital resources they are talking about. And, they are looking at what is a good balance of the public-private partnerships. She said they have great foundations in North Carolina and they have great commitments from business and industry. She said they are looking at how they can utilize those more strategically and not just rely on the State to make some of these innovations a reality for our students and our teachers.

Dr. Corn moved to the slide entitled “Methodological Approach.” She said in phase one they were trying to organize the existing data that they have. They have been looking at existing surveys and school network analyses, and they have been getting out in the field. She said they have been doing presentations with district tech directors, with media coordinators, and with superintendents letting them know about the digital learning plan and gathering initial information from them, making sure that even such things as their initial organization of the work makes sense. In phase two, from November through February, Dr. Corn, said they would

be doing a deep dive in 16 of their districts, and they will be focused on talking to everyone they can—teachers, students, principals and even community members—working around each of the work team areas: Human Capacity, Content & Instruction, Technology Infrastructure and Devices, and Funding & Policy. She said they will be doing a lot of data analysis as the information comes in, and also sharing back and vetting to make sure what they are seeing in the data is also what their stakeholders are seeing in the data. She said they have real commitment to engaging stakeholders in the process and being very transparent about where their recommendations are coming from. Dr. Corn said finally, in phase three, they will be putting all their pieces together and coming up with very specific findings and recommendations around each of the work team areas, based on the data they are collecting and the data they already have.

As a quick overview of some of their stakeholder engagement, Dr. Corn said they put together a great, informative and very representative advisory board that is giving them feedback about the entire plan. She said each of the work teams will also have a working team advisory board. Again, she said they are setting up meetings and doing presentations with a lot of their education stakeholders including students and parents, policy makers, and business leaders trying to identify the models and exemplars in our state and also outside of our state that they can build on. She said they have a plan to do at least eight regional town hall meetings across the State once they have the meat of the plan together to vet a lot of the recommendations and findings. She said they will certainly engage the General Assembly members as she is sure they will want to be involved in some of those discussions. In addition, she said they would be doing webinars and online surveys to make sure they are getting their information out.

Dr. Corn showed a map snapshot of the proposed sample districts in her next slide. She said they were still waiting on agreement from superintendents in three of the districts shown. She said they felt like they sampled around regions, size, and where they are in their transition to digital learning. She said they feel like this will give them a good opportunity to get out to the districts and talk to folks on the ground to make sure that the plan they are developing at the Friday Institute isn't one of those plans that just comes from Raleigh—that it is something that everyone feels like they've had an opportunity to give feedback on. If folks are not on board out in the field, Dr. Corn said it won't get implemented.

Dr. Corn said there is a website that has been set up, <http://ncdlplan.fi.ncsu.edu>. And, she went on to the slide entitled, “Deliverables” showing their abbreviated timeline. She said they feel like they have a great team in place, including a lot of staff members at the Friday Institute that are a part of this work, and they absolutely will be able to meet the deadlines.

Dr. Corn emphasized the four main points again. She said they are talking about significant changes to schooling in North Carolina. These changes are going to require not just a commitment to technology around devices and infrastructure, but also digital resources and updating the education workforce. It is about professional development and about thinking differently about pipelines for our educators. She said they will build on local innovations and will engage all stakeholders in the plan. She said they will provide policy and funding recommendations to enable North Carolina to be a real leader.

As final notes, Dr. Corn said they are moving in the right direction but do not feel like any of this will be completed by 2017, 2020, or any other year. She said it is an on-going process for our state, requiring multiple investments. She said the return on investment for this work is really about the return on investment for our students in terms of educational outcomes, increased graduation rates, and career and college readiness.

Dr. Corn asked if committee members had questions or comments.

The Chairman Martin recognized Co-chair Horn. He said wanted to comment on something that Dr. Kleiman said that he really appreciated. He said this is not a digital learning plan, this is a learning plan enhanced by technology for a personalized and customized approach to education. He said that is something that has gotten lost in some of the discussion because there has been so much focus on devices and gadgets. It is not a digital plan; it is an education plan utilizing the digital environment. He said he could not be more proud of our state, which he thinks will lead the nation and maybe the world in transitioning to a fundamental change in how we deliver education.

There being no further comments or questions, the chair recognized Kara McGraw, Committee Counsel, North Carolina General Assembly, Research Division, to give an update on the Cooperative Innovative High School Application Process.

Ms. McGraw said the chairs asked her to give a brief overview of the statutory process for how Cooperative Innovative High Schools are authorized and talk about some issues that have arisen due to the timing of that. She provided a handout, which is attached as Exhibit 15.

As a background, she said the committee heard last fall from the Community College System and from the State Board of Education as part of their overview of innovation about some of the Cooperative Innovative High Schools in the State. She showed a slide depicting four of the factors that the statutes require as criteria to be considered a Cooperative Innovative High School. It has to be operated in a partnership mode; it is a partnership between the local board of education and the institution of higher education. She said that can be a North Carolina community college, a public university, or a private university or college. It does have to have as part of its plan that the student will be able to currently finish his/her high school degree as well as earn some sort of higher education credential. It does not have to be a full associate's degree; it could be two years of credit toward college, it could be part of the way to an associate's degree, or it could be some kind of workforce training certificate. She said they are required to have less than 100 students per grade, and they are supposed to be located on the campus of their partner of higher education, but that requirement can be waived by the higher education board—the one requirement that can be waived.

Ms. McCraw said the Cooperative Innovative High Schools are schools of choice, so students apply to participate and to be a part of those schools, which does make them somewhat unique. She said they function somewhat like a magnet school in some of the larger school systems. She said they are frequently called early college high schools or learn and earn high schools, but under the statutes they are all called Cooperative Innovative High Schools. Ms.

McCraw said they are sometimes five-year programs when the students earn both a high school and an associate's degree.

Cooperative Innovative High Schools are located all over the State. Ms. McCraw said over half of North Carolina's LEAs now have a Cooperative Innovative High School, and there are currently 80 operating.

What is their impact? Ms. McCraw said they are pulling a very special subset of the population, and are targeting frequently first-generation college students. She said they have very successful results. The students typically have very strong performances on end-of-course tests; they have very good graduation rates, many have 100% graduation completion rates; and they tend to have low drop-out rates.

How are they funded? Ms. McCraw said they are funded a little bit differently than a traditional high school. They receive basic funding the same way that any high school in the state would. High schools are funded on an ADM model or average daily membership, and LEAs receive that ADM funding for each student that is attending the Cooperative Innovative High School. They do receive some additional funding in addition to that basic funding. The first pot of money that they receive in addition is \$310,000 per year. She said the State Board is part of the oversight of these schools, and that money is used to pay for such things as instructional coaches and professional development. The funds are also used for special positions at these schools like guidance counselors, career development coordinators, and college liaisons. The funds can also be used to pay for the cost of the college textbooks.

Ms. McCraw said the other additional funding cost for Cooperative Innovative High Schools does not go to the high school itself but actually pays for the higher education piece. During the Caterpillar presentation the committee heard mentioned the Career and College Promise. Ms. McCraw said in North Carolina juniors and seniors are eligible to enroll in the community college system, and their tuition is covered for courses they take. She said there are some admissions criteria, however. Students have to demonstrate college readiness before they take those courses, and if they are not eligible for just any course they want to take.

Ms. McCraw said Cooperative Innovative High Schools are different. Any student who is enrolled in one of them may also enroll in community college courses and the tuition is covered beginning in ninth grade and goes throughout the end of their fifth year. Those additional enrollment costs right now are about \$35 million a year for community colleges and for universities it is about \$1 million. Of those partnered with universities, she said most of our cooperative innovative schools are partnered with public universities although there are a few that are partnered with private universities.

Ms. McCraw said a problem has come about, and she said she would give a brief background and history of that. She said Cooperative Innovative High Schools came about starting around 2005, and they were an outgrowth of some legislation around 2002 or 2003. The initial schools were opened in 2005 or 2006 and were supported by the Bill and Melinda Gates Foundation, which put out a fairly large grant to provide support for these new high school models. In 2007, the General Assembly made another appropriation to help with some startup

funding for these high schools. Ms. McCraw said there was significant growth between 2005 and 2010 when approximately 70 high schools opened across the state at the rate of about 10 to 15 per year.

In 2010, Ms. McCraw said the General Assembly enacted a moratorium, and that moratorium said you could not open a new Cooperative Innovative High School until that school received explicit funding from the General Assembly. That same budget provision also directed that the Department of Public Instruction study the fiscal impacts of Cooperative Innovative High Schools, looking at the number of new schools that were being created. So, between 2010 and 2012, there was a drop off in the number of Cooperative Innovative High Schools that were being opened, and one or two a year was the maximum. In 2012, the General Assembly came back to the issue and looked at the process for authorizing the schools. A two-track application was instituted, and the moratorium was repealed.

Ms. McCraw said with Track 1, the school is not going to ask for any of the additional funding beyond what a traditional high school would get from the State. The school applies to the State Board of Education, and to whatever the higher education board is for the high education partner. As part of the application, the school is required to demonstrate the sources of funding that would pay for the additional cost of the model; and then if both boards approve the application, the statutes say that school is free to open. The General Assembly does not have to take further action.

With Track 2, the school requests additional funding from the General Assembly. In this case, the school does the same application as Track 1 schools, but the application is for contingent approval. If the approval is received, then the statutes require that the LEA seek the additional funding from the General Assembly in its next session. The boards will grant approval by April 1st, and then within one year the school must ask that the General Assembly provide the funding. If that additional funding is received within one calendar year, then the Cooperative Innovative School is free to open, and the State will provide those additional costs.

This procedure has created some timing concerns because the school must seek funding within one year of conditional approval. Sometimes that does not line up well with the school year and the timing of the General Assembly budget. Ms. McCraw gave an example of what happened in 2013 and 2014. She said there were three LEAs from Wake and Mecklenburg that applied to open six Cooperative Innovative High Schools. They turned in their applications in the fall of 2013, the boards made their approvals in January of 2014, and the Governor included funding for those schools as part of his proposed budget. The 2014 budget was not actually signed into law until August 7, 2014, and those schools did not know for sure if the conditional approval had become final approval to open. For this next school year, Ms. McCraw said there are ten applications to open new Cooperative Innovative High Schools. They have not yet been considered by their boards, so it is unknown how many will get conditional approval. All ten, however, have asked for State funding.

Ms. McCraw said there are two possible statutory changes that could be made. Both of them involve the concept of creating a planning year so that the school system is not hobbled by this idea that they have a one-year time frame, and they would be able to do planning once they know for sure that they have the funding. They would not have to open their doors two weeks

after they are assured of the funding. The first possible change is to simply build that planning year into the process. The second is to actually provide some sort of grant money to assist the schools in planning during that year if they need to hire assistance in order to be able to get everything up and running during that time period.

Chairman Martin asked what happened with the schools that got approved in August; she asked if they got to open in 1014. Ms. McCraw said all six received money in the budget and were able to open.

The chair asked if there were comments or questions from committee members.

The chair recognized Representative Lucas for a comment. He said he know of an instance where a university houses two Cooperative Innovative High Schools, and the local LEA refuses to pay for custodial services to operate in the university, and the university feels like they are providing the services and not getting reimbursed for it. He said he hopes the squabble gets solved without any legislation, but they might need some.

Co-Chair Horn asked how they would evaluate the success of these Cooperative Innovative High Schools. He asked if they were measurement differently, and who would decide if this is a good idea for long term.

Ms. McCraw said there is an annual report to the General Assembly this year about these schools. She said New Schools have been working heavily with these schools and provide administrative support and training. New Schools has done a couple of different studies with outside evaluators to look at things like how they stack up in terms of going on to college, whether or not students are finishing high school within four years, and how they are doing on end-of-course tests. Ms. McCraw said they have been comparing them to high schools that should have similar compilations. She said that is how they have been measured up to this point, and she said she can provide copies of past reports for anyone who wants to see them.

Co-Chair Horn asked if the General Assembly defined what success is before starting the schools, or are they building the airplane while they're flying it?

Ms. McCraw said the enacted legislation stated that the schools needed to be aimed at first-generation college students, and they were to enable them to make the transaction to college and be workforce ready; however, there were no measurement provisions included in the legislation.

Chairman Martin said this reminds her of the earlier presentation on the preschools where it is costing us more money to educate these same number of high school students, but are we saving money because they are coming out also with a community college degree, and we're not spending money on remediation, and they have almost a 100% graduation rate. But is that the right thing for every student? When we have funding challenges it looks like that's when we say we can't afford this for every student; we need options.

The chair recognized Mr. Bulson. He said they have one of the few educational programs that actually has demonstrative progress in closing this human gap. The outcomes for the students who were most focused on, which is first-generation college goers, are very strong. He said most education programs have a hard time showing such outcomes, and there is a lot of good data to support Cooperative Innovative High Schools. He said North Carolina has 23% of the impoverished high schools in the country; and this is just one of the great things we have to leverage them.

Chairman Martin asked if anyone from DPI would like to make a comment about this program.

Ms. Rebecca Garland from the Office of the State Superintendent, Department of Public Instruction stood and identified herself. She said the report annually does address the categories that were in the original legislation. She said the schools have been very successful in increasing the graduation rate, and about a third of the schools had students who received their associate's degree.

The chair said, for planning purposes, the committee would meet again on December 10th at the Legislative Office Building (later changed to December 16). During the interim month, she said staff would be preparing the final report of recommendations for the long session of the General Assembly. She asked members to review the recommendations that were prepared for the short session of the General Assembly, and to contact Representative Horn or her with other topics or concerns or feedback. She said the committee would vote on the final report at the December meeting. She said another topic would be the value of continuing this type of committee. She said the committee is now set up through the end of this year, and she wanted the committee to think about whether their work has been valuable and whether it is a committee that ought to continue. She said they were not looking at innovation just because they think its cool and exciting and they want to just change; she said they wanted their work to tie into the results of our students in North Carolina and achieve better results. She said it has been her impression that you can't just say we want to raise the bar and compete globally and then push that out to our educations and students without engaging them in a new way. She said she appreciated the comment that the digital plan is not a one size fits all proposition but something that can be tailored to work across the whole State, allowing people to have creative ideas that give us good results. Chairman Martin recognized Co-Chairman Horn for closing comments.

Co-Chairman Horn said to follow up on what Chairman Martin said, at the next meeting the committee is going to vote on a final report. He said members would get a draft ahead of time. He said the members had spent the past year listening and getting information. He said it is now time to go work and put forth recommendations to the new General Assembly. And, as was also said, among those recommendations could be a continuation of this committee or creation of some facility or activity-oriented act toward innovation. With that in mind, he said there was one more presentation that they were going to get today, but there was not enough time. He said members were furnished a handout (Exhibit 16), and he said they would be contacted by folks from Visiting International Faculty (VIF), which has to do with dual language immersion in our schools. He said Americans are renowned to be unilingual, and that is not serving us well. He said when you speak only one language it gives you only one way to look at things. By speaking

other languages, you get multiple ways of looking at things because languages are different with different words and different meanings and different structure. He said our ability to think is constrained by our language. Further, he said visiting a VIF in progress to see the impact on the students is eye opening. It significantly increases their ability to comprehend; it uses more of their brain and gives them better outcomes across the board. He said he was asking committee members to take advantage of an invitation to attend a VIF activity in progress and consider it as being part of the committee's final report, if members think it is worthwhile.

At the next meeting in Raleigh, Co-Chairman Horn asked members to come prepared to speak up, defend, or attack the proposal so at the end of the meeting they vote out a recommendation to the General Assembly for their consideration in 2015.

There being no further questions or comments, Chairman Martin adjourned the meeting at 3:58 p.m.

Representative Susan Martin, Co-Chairman

Margie Penven
Committee Assistant

Attachments:

- Exhibit 1: Visitor Registration Sheet
- Exhibit 2: Agenda
- Exhibit 3: How HB 96 Grants Program Works
- Exhibit 4: What is a Social Impact Bond?
- Exhibit 5: Pay for Success & Social Innovation Finance
- Exhibit 6: Fact Sheet: The Utah High Quality Preschool Program
- Exhibit 7: UPSTART
- Exhibit 8: Waterford Early Learning
- Exhibit 9: Upstart Program Report of FY 2014
- Exhibit 10: Apprenticeships in North Carolina
- Exhibit 11: Apprenticeship 2000
- Exhibit 12: Caterpillar Assembly Pre-Apprenticeship Program (Clayton, NC) Welding Apprenticeship Program (Sanford, NC)
- Exhibit 13: North Carolina Digital Learning Plan
- Exhibit 14: North Carolina Digital Learning, Plan Policy Brief, June 2014
- Exhibit 15: Cooperative Innovative High Schools Statutory Application Process
- Exhibit 16: VIF International Education, Board of Directors Report—September 2014

NOTE: All attachments can be found at the Committee's website:
<http://www.ncleg.net/gascripts/DocumentSites/browseDocSite.asp?nID=243>